

ATTACHMENT 1

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A-SW-000814

United States Government

Department of Energy

memorandum

DATE: NOV 10 1992

REPLY TO

ATTN OF: EM-563 (Poppit:3-7250)

SUBJECT: Policy for the Distribution of Radioactive Environmental Samples to Commercial Analytical Labs - Sample Split Between Commercial and the Department of Energy Analytical Laboratories

TO: Leo P. Duffy, EM-1

PROBLEM:

The Office of Environmental Restoration and Waste Management (EM) needs a policy regarding the distribution of radioactive environmental samples that may be sent to commercial analytical laboratories for analysis. This policy will ultimately affect the split of EM samples between commercial and the Department of Energy (DOE) analytical laboratories and has implications related to radiological safety of commercial analytical laboratory workers and the public.

BACKGROUND:-

EM has a goal of using commercial analytical laboratories for environmental analyses to the maximum extent possible because commercial analytical laboratories will provide needed analytical capacity, government use of commercial services is encouraged whenever economically feasible (OMB Circular No. A-76), and utilization of commercial analytical laboratories provides opportunities for cost savings. Furthermore, the commercial sector has experience in high-volume production of environmental analytical data. Several commercial analytical laboratories are licensed by the Nuclear Regulatory Commission (NRC) or States with NRC agreements (Agreement States), and we expect that additional laboratories will seek NRC or Agreement State licenses to support DOE as we provide guidance (such as this policy) to them.

The radioactivity of EM samples ranges from background up to highly radioactive. Samples may contain beta, gamma, and/or alpha emitters, and many alpha emitters will include transuranic (TRU) materials. Commercial analytical laboratories are generally licensed for low-to-medium radioactivity samples (that is, specific activities less than 100 uCi for beta-gamma and 10 uCi for alpha - including TRU and special nuclear materials - per sample). Many DOE analytical laboratories handle significantly higher radioactive samples on a routine basis.

Shipment of samples to commercial analytical laboratories does not abrogate EM's responsibility for the radiological safety of laboratory workers and the public. Distribution of samples to commercial analytical laboratories will involve some degree of risk that samples may be lost or mismanaged during transportation and analysis. Residual sample materials and additional wastes generated during analysis must either be returned to DOE or be disposed of in accordance with applicable contract requirements and regulations. This policy and its subsequent implementation guidance will establish a balance between

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EM's need to use commercial analytical laboratories and its responsibility to assure safe handling of its samples.

DISCUSSION:

There are two basic options for establishing a sample policy regarding commercial analytical laboratories and hence the split between commercial and DOE analytical laboratories. Each option has positive aspects.

The first option is to select a specific low-level upper limit for sample radioactivity that may be sent out to commercial analytical laboratories for analysis. By selecting a reasonably low sample radioactivity, we can minimize potential risk to the public attendant to accidental release by the commercial analytical laboratory or during sample transportation. Also, this would minimize the risk to commercial analytical laboratory workers.

Specifying a clear-cut limit will allow us to plan for adding internal analytical laboratory capacity with a higher degree of certainty. For example, if we know all samples above 10 uCi per sample will be analyzed by DOE analytical laboratories, we will have a better basis for planning additional facilities. This option, however, will mean that a number of samples that could potentially go to commercial analytical laboratories by virtue of their NRC licenses will be retained within DOE for analysis. This will restrict capacity and could mean higher analytical costs, on average, for DOE programs. Furthermore, commercial analytical laboratories might assert that their opportunities are being unfairly restrained by such a policy.

The second option would be to send out samples limited only by the commercial analytical laboratory's NRC or Agreement State license. This option would maximize the commercial capacity available to DOE and is in accord with EM's goal of using commercial analytical laboratories to the extent possible. It provides opportunities for potential cost savings and will allow the commercial sector to participate in the analysis of radioactive samples to the extent of their capabilities. Because of our reduced control over samples in the custody of commercial analytical laboratories, and our lack of regulatory authority over the radiological safety practices of those commercial analytical laboratories, our potential vulnerability increases (that is, our potential legal responsibilities) with increasing sample radioactivity. Assessment of resource needs for DOE analytical laboratories will be more complicated since the split will be defined, to a large extent, by NRC or Agreement State licenses. Moreover, these licenses can be expected to change, so planning for facilities requiring long lead times will be especially difficult.

CONCLUSION:

There are two basic options for defining which samples may be sent to commercial analytical laboratories for analysis. We could establish a specific low-level radioactivity limit or allow samples to be distributed up to the limits of the commercial analytical laboratories' licenses. A specific

low-level radioactivity limit approach may provide additional assurance for radiological safety and make DOE analytical laboratory capacity planning easier, but it will restrict DOE's access to present and future capacity and may be more costly. The license limit approach will maximize use of commercial analytical resources and may be less costly; however, internal resource planning will be more complicated.

Implementation of either option will require assurance from NRC and Agreement States that they can assimilate increased radiological safety oversight responsibilities. The license limit approach could result in risks of worker or public exposure to radioactive materials that, while still quite low, are relatively higher than for the specific limit approach. EM-563 will provide guidance to field offices concerning how this policy should be implemented (for example, procedures so laboratories do not receive samples that exceed their license limit, a phased approach based on sample radioactivity levels, sample transportation requirements, and direction so worker and public health and safety are protected).

RECOMMENDATION:

We recommend implementing the license limit approach, since it will provide needed analytical resources to DOE with potential cost savings, especially regarding analytical laboratory construction. DOE should use commercial analytical laboratories to analyze radioactive environmental samples if the samples have levels of radioactivity within the limits of their NRC or Agreement State license and if they have sufficient analytical capacity. With appropriate oversight of commercial analytical laboratories' radiological safety practices by NRC and DOE, the commercial sector can participate in EM's analytical programs to the extent their NRC or Agreement State licenses will allow.


C. W. Frank

Deputy Assistant Secretary
for Technology Development

APPROVED: 

DISAPPROVED: _____

DATE: 11-19-92